# Rebuilding the Schoolhouse

## *Making Army Training More Efficient and Effective*



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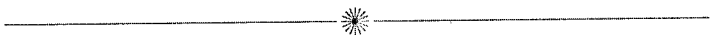

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Competition for scarce resources—both dollars and soldiers—has driven the Army to explore ways to reduce the costs and infrastructure needed to conduct military education and training. Resources devoted to military education and training are substantial; in FY00, the Active Component training institutions cost the Army $5.7 billion to run and absorbed 44,500 staff and 74,000 trainee man-years [1].

The Army not only wants to reduce the resources it devotes to the training base, it also seeks to improve the performance of its schools. To achieve these goals, the Army has undertaken various initiatives to restructure and modernize its individual training system, including, for example, establishing the Total Army School System and The Army Distance Learning Program (TADLP).

The task is a tough one: improve performance while reducing resources. The range of strategies the Army could pursue complicates the task. Which of them offer the best chance for success? RAND Arroyo Center has examined the Army's recent initiatives along with a number of others, and its analysis suggests that four strategies could help the Army achieve its goal:

- Integrate Active (AC) and Reserve Component (RC) training institutions;
- Expand the use of educational technologies in Army schools;
- Leverage "flexible" distance learning technologies;
- Increase the use of the private sector in Army training.

## Integrate AC and RC Training Institutions

In the mid-1990s, the Army created the Total Army School System (TASS). The TASS concept organized the United States into training regions and consolidated a number of RC institutions. However, while the links between AC and RC training have been tightened, the AC still trains its soldiers at its own installations, and most RC members get their advanced skill training and professional education in schools run by the Army Reserve (USAR) or the National Guard (ARNG).

An Arroyo Center study demonstrated the potential for consolidating training institutions and improving efficiency at USAR and ARNG training institutions [2]. The Army could more efficiently use available training spaces and better manage its instructors. In addition, training could occur at fewer locations, which would allow school staffs to be consolidated and improve economies of scale [3].

A subsequent Arroyo Center study explored the potential benefits of further consolidating and integrating the Army's 27 AC and 136 RC training institutions [4]. The analysis used an optimization model to examine a "hub and spoke" concept for training, focusing on Army maintenance occupations. Under this concept, the AC proponent school (Aberdeen Proving Ground (APG)) serves as the "hub," while RC-run full-time Regional Training Sites for Maintenance (RTS-Ms) serve as the "spokes." Soldiers would train at the nearest accredited maintenance school, regardless of their component or which component operates the school. For example, AC soldiers at Fort Hood could take reclassification training

or NCO education courses at the RTS-M located near Fort Hood, while RC soldiers living near APG would take their classes there. (Many RTS-Ms co-locate with AC installations.)

Using the optimization model, researchers compared three options to a "baseline" of actual training delivered in FY96. The "nearest school" option assigns the student to the nearest school that recently offered a version (AC or RC) of the needed course. (The model allows for the possibility that schools could offer courses to AC or RC students, if they currently serve one of these populations.) Next, the "realign courses" option allows schools to offer maintenance courses to soldiers of both components, based on local demand. Finally, in the "consolidate schools" option, the model considers the total number of schools needed to meet the entire training requirement in maintenance occupations, if students could attend the nearest school, based on local demand.

The analyses show that all the options offer two potential benefits. First, because many of the schools are at or very close to students' home stations, all options save travel costs. Figure 1 shows the results of one option that illustrates the magnitude of the savings. The leftmost bar shows the actual travel costs associated with FY96 schooling in maintenance courses (reclassification training and NCO education). The next bar shows the cost of the first option (take the course at the nearest school) as a percentage of the baseline cost. Under this option, travel costs fall by approximately 24 percent. The "realign courses" and "consolidate schools" options also save money compared with the baseline. Savings range from 15 to 47 percent, depending on how specialized the course offerings are.

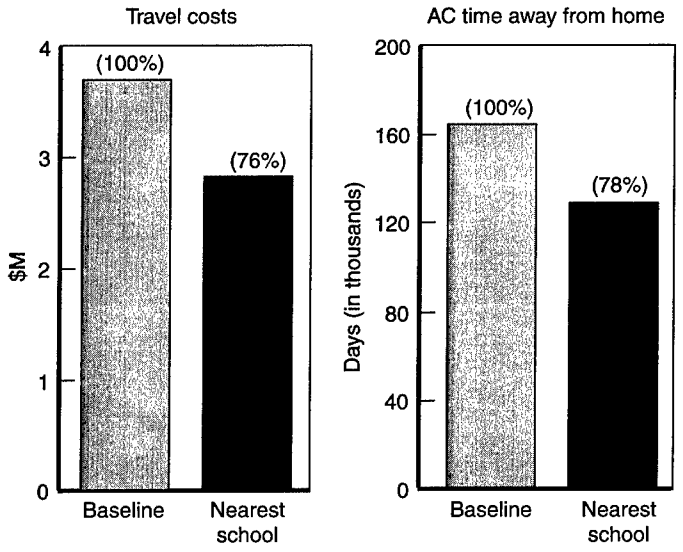



**Figure 1—Sending Students to Nearest School Reduces Travel Costs and Student Time Away From Home**

The second benefit is that AC soldiers spend fewer days away from home, a particularly valuable result at a time when soldiers are facing more deployments. As shown in the right panel of Figure 1, "nearest school" lowers the amount of time separated from home and family to 78 percent of the baseline. This amounts to approximately 35,000 days, with per-diem savings estimated at approximately $3.5 million. The "realign courses" and "consolidate schools" options also lower the time separated and save per-diem costs.

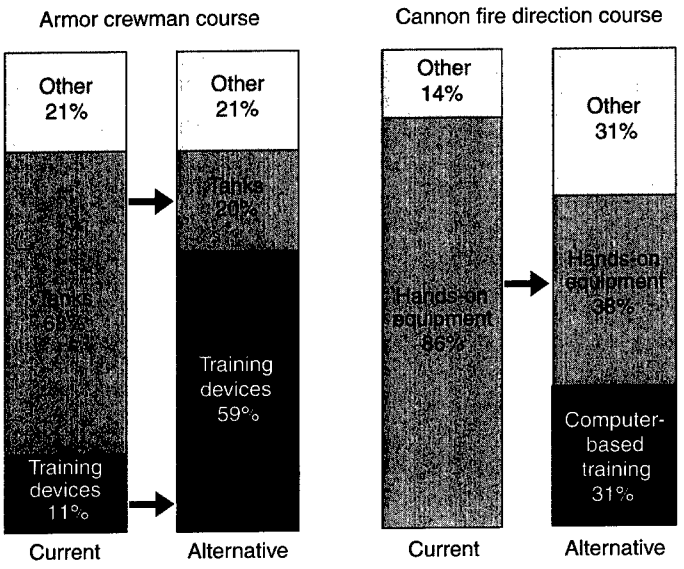
We also examined the potential for reducing the total number of schools offering maintenance courses. Depending on the specific option examined, the model indicates that maintenance courses could be offered at two to six fewer RTS-Ms than the 17 currently used. These RTS-Ms could be closed, or their

mission could be changed to provide similar local capacity to offer training courses in other CSS fields, such as transportation or quartermaster. This in turn could allow other RC schools now offering these courses to be closed and their resources to be deployed for other uses. At the same time, as more AC soldiers are trained in RC facilities, workload declines at AC installations, which could free up manpower in AC training installations for alternative uses.

## Expand Use of Training Technologies in Army Schools

Another promising direction for restructuring lies in using computer-based training and "TADSS" (training aids, devices, simulators, and simulations) more extensively within Army training institutions. Schoolhouse training technologies can improve efficiency and reduce costs in several ways. First, well-designed interactive courseware can permit equivalent training to occur *faster*, allowing shorter courses and thereby saving training manpower and student pay and allowances. Second, educational technologies can often provide equivalent training at less cost than hands-on, equipment-intensive training. Finally, technology can make school personnel more productive, potentially requiring fewer school staff to conduct and administer training courses.

Arroyo Center research [5] has analyzed programs of instruction for selected Army skill training courses and found considerable potential to expand the uses of training technologies (Figure 2). In two training courses (tank crewman and cannon fire direction), some material trained by other means lends itself to




NOTE: The "other" category refers primarily to platform instruction.

**Figure 2—Use of Training Technologies Can Be Expanded in Schools**

computer-based instruction (CBI). Research on CBI generally finds that it can reduce the time needed to train a given set of material by approximately 30 percent.

For tank crewmen, some material now trained using an actual tank (an expensive training aid) could be taught using training devices—specifically turret trainers and hull driver trainer vehicles. The analyses showed that using such training devices could offer considerable savings over current training methods requiring extensive use of tanks. A startup investment of $8 million would return as much as $38 million in savings within five years [6].

In the cannon fire direction course, the bulk of the training is done using hands-on equipment (86 per-

cent). Substituting CBI and increasing other technologies, the proportion of hands-on training could fall to less than 40 percent. CBI could enable the Army to cut the course length and thus require less training manpower (in this case, civilians). This alternative could offer five-year savings of $835,000 after an initial investment of $319,000.

An important issue in thinking about more extensive use of training technologies is the degree to which these technologies can substitute for hands-on equipment training without degrading proficiency. Another RAND study addressed this concern [7]. That research concluded that if there is uncertainty about training effectiveness, it can be measured in a controlled experiment that compares hands-on and technology-assisted training. That study examined uses of interactive training technologies to substitute for hands-on equipment training in Army signal courses. The results showed that training technologies can maintain proficiency while reducing the costs of equipment training. However, a mix of hands-on and technology-assisted training is needed to ensure proficiency.

## Leverage "Flexible" Distance Learning Technologies

The Army is expanding its use of "distance learning" (DL) as a way to improve the effectiveness and efficiency of military education and training. DL uses information technologies to deliver training at soldiers' home stations, enabling the Army to shorten the amount of time devoted to resident training at its schools. The Army's DL program is building "distance learning classrooms" and developing course-

ware, investing approximately $850 million through 2015, including costs already accrued for AC and RC training programs.

Research has shown that the efficiencies and benefits derived from the use of DL depend importantly on the specific technologies and methods used to deliver it. A RAND study, analyzing an early distance learning application in the Army's Armor Officer Advanced Course, showed that DL using live video-teleconferencing can cost more than traditional methods of instruction [8]. In contrast, "asynchronous" methods (that is, methods that do not require all students to be present at the same time) such as computer-based or Web-based training provide greater flexibility at lower cost. Web-based training and DL can also support synchronous conferencing and would be a cheaper alternative to synchronous teleconferencing using dedicated facilities and hardware.

Recent RAND research has examined ways to take advantage of DL flexibility to accomplish important Army goals, specifically, improving personnel readiness while reducing the time needed for resident training. The research examined two ways to leverage DL's potential: alleviate shortages of enlisted personnel in key military occupational specialties (MOSs) [9] and enhance the stability and professional development of leaders and soldiers [10].

We analyzed several ways that DL could alleviate enlisted personnel shortages that currently pose serious problems for the Army. First, DL can facilitate reclassification training of soldiers from surplus to shortage occupations, rebalancing strength into skills where it is most needed. DL also supports cross-training among related specialties, and it can assist the Army's ongoing efforts to consolidate MOSs, pro-

ducing a more versatile soldier who can work across a broader range of skills. Finally, DL can accelerate NCO education and produce qualified NCOs for positions where they are needed.

Figure 3 illustrates a potential benefit of using DL to facilitate reclassification training, focusing on an entry-level aviation maintenance skill for which the Army has experienced shortages in recent years. The figure shows that filling personnel shortages through reclassification costs less than getting a new recruit (by 36 percent per position filled). Incorporating DL into the reclassification course promises to be an even less expensive solution (by 64 percent).

Another study examined the institutional training and associated travel patterns of an officer's career course (armor) to ascertain whether DL could offer benefits in stability and professional development.

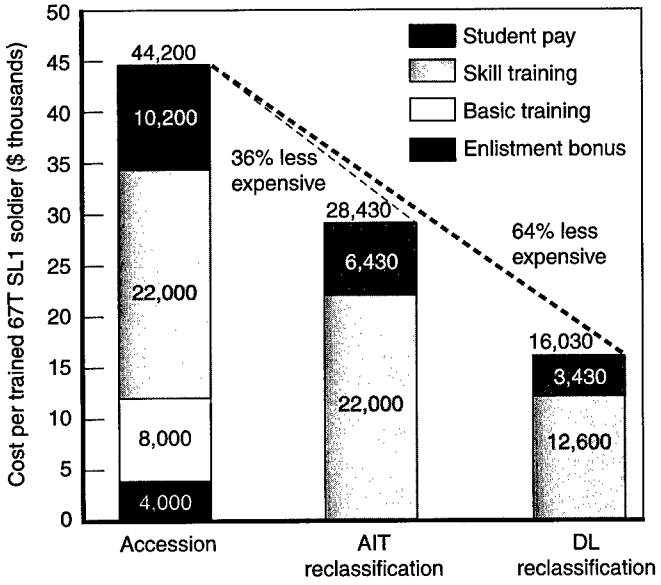



**Figure 3—DL Is the Least Expensive Way to Provide Reclassification Training**

Researchers considered four options, varying the mode of attendance (e.g., the officer could be assigned to the school location on temporary duty status, as a permanent change of station, or a combination of these two). Results show that using DL increases the time a student can be available to his or her home unit by between 32 and 43 days. Some of the time at the home station would have to be devoted to DL study; allowing for this leaves a net gain of 16 to 27 days per student. Extending the analysis to the entire population of captains who attend such courses each year yields between 115 and 135 additional working man-years. Extension to other officer and enlisted courses would yield more than 800 man-years.

But this approach saves travel and per-diem costs only where DL can help to shorten courses that are already being done in a temporary duty mode. These kinds of savings could be in the $20 million range once the DL program matures.

## Expand Use of the Private Sector in Army Training

Increasing the involvement of the private sector in training is another way to conserve scarce resources (e.g., military personnel). There are several ways to increase private-sector involvement in a function traditionally performed by the government or the military. One of the more common approaches is to *outsource* activities to a private contractor (e.g., under A-76, a process that evaluates whether it is cheaper for a government or a private source to provide a service). *Privatization*, a special case of outsourcing, may be appropriate when the government owns suitable facilities and hardware and wishes to turn them

over to a private-sector provider. In general, the federal government pursues outsourcing or privatization for two reasons. The first is to improve performance and lower costs by focusing governmental or military resources on only those activities that truly require them. The second is to provide greater flexibility and speed in implementing new programs or practices without a great deal of government-funded capital investment.

To date, the Army has considerable experience with outsourcing in certain functional areas, such as equipment maintenance or providing services at installations, but outsourcing has made only modest inroads into the Army's individual training system. Army schools occasionally use private contractors to develop training products or support base operations, but outsourcing decisions are often made locally and have occurred (in many cases) in response to shortages of military or government personnel. To date, the Army has not thought strategically about the role that outsourcing or privatization might play in a broad restructuring of its training system.

Research and planning that address a potentially expanded role of the private sector in the Army training system is worth pursuing. Such an examination might begin by considering each of the major individual training functions—training development, training delivery, and training support—with respect to the major resources needed to perform them. These resources fall, in general, into the categories of manpower, facilities, and equipment. It may be possible to substitute at least some private sector resources for government or military resources in performing these training functions. Many Army occupations have much in common with their civilian counterparts (finance, administration). The same is true of

other, highly technical specialties (information technology, electronics repair, and medical). Even in courses requiring unique military expertise, the private sector could play a greater role in training development and training support, freeing scarce military manpower for other uses.

## Conclusions

The research described here suggests that the Army can improve the efficiency and performance of the individual training system. Good progress has been made, for example, in consolidating and integrating AC and RC schools, in bringing more technology to the schoolhouse, and in moving toward asynchronous, Web-based distance learning programs. However, much more can be done. The training infrastructure can be consolidated further, and the AC and RC school systems can be further integrated to make them truly "seamless." In the area of distance learning, more attention and resources need to be given to content (rather than infrastructure) that makes DL-supported training attractive to students, commanders, and the Army, with sufficient flexibility for easy integration into varying soldier career paths. Realizing DL's potential contribution to personnel readiness means making *stability enhancement* a major objective of DL and emphasizing this application in the active force. It also means that harnessing DL to *alleviate personnel shortages* should be a policy priority for identifying courseware needs for reclassification training. Finally, the *potential role of outsourcing and privatization* in the Army education and training system still needs to be determined.

## ENDNOTES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